the deaf and of controlling the advance of processes which make for a further limitation of an important special sense. The various attempts toward a favorable solution of the question have had their point of departure from a common ground, the reëducation of the defective organ of hearing by its subjection, in varying degrees, to different classes of sounds. The methods employed for auditory reëducation are divisible into two general groups, the first dealing with the audition of artificial or mechanically-produced sounds, the second availing itself wholly of the sound of the human voice and articulate language. In the first method is included a great variety of sounds of varying timbre and intensity, tuning-forks, sirens, pipes, whistles, and a variety of instruments electrically agitated for the purpose of maintaining a definite and controllable continuity of sound. One of the objections to the employment of sound sources of a mechanical kind is the prevalence of metallic overtones and the injurious effects upon the membranous labyrinth of prolonged exposure of the auditory apparatus to tones of this class as shown by Siebanmann, Hoessli, and others. The second method relies solely upon the instrumentality of the human voice, to the compass of which the human auditory apparatus is especially adjusted, a method which has found its foremost exponents in Austria and North America, some of whom couple the auditory reëducation with the visual study of the component movements of the lips and face. In extreme cases the vocal reëducation should begin with the simple vowel sounds and extend to the introduction of individual consonant checks and later to their combination in spoken words and sentences, while even in cases of a moderate, monaural, impairment of hearing the reëducation is of value as an adjuvant to others, established, forms of local treatment.

## PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

JOHN McCRAE, M.D., M.R.C.P.,

LECTURER ON PATHOLOGY AND CLINICAL MEDICINE, MC GILL UNIVERSITY, MONTREAL; SOME TIME PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF VERMONT, BURLINGTON, VERMONT; SENIOR ASSISTANT PHYSICIAN, ROYAL VICTORIA HOSPITAL, MONTREAL.

AND

OSKAR KLOTZ, M.D., C.M.,

PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, UNIVERSITY OF PITTSBURGH, PITTSBURGH, PA.

**Cellular Constants, Water.**—MAYER and SCHAEFFER (*Jour. de Physiol et de Path. gen.*, January 15, 1914) have shown some interesting facts in connection with cellular constants, beginning with water, and its equilibrium in the tissues. The cellular constituents being colloidal complexes, appear in a protoplasm which is a gel: the lipoids are not confined to cell membranes but are contained in the protoplasm. Protoplasm being a mixture (differing for the type of cell) of albuminoids, lipoids, salts, and water (the cellular constants). Mayer and Schaeffer endeavored to determine upon what the amount of water depends. As far as inhibition of water is concerned, the lipoids act as limiting factors; and cholesterine has a particular power of its own. If fatty acids only or cholesterine alone be present, they prevent the absorption of water; if a mixture of lipoids and cholesterine be present, it renders the lipoids penetrable by water and so lessens this prevention. The more cholesterine and albuminoid gel mixed with lipoids contains, the freer will be its inhibition of water. The water capacity of different tissues varies within narrow limits, and water is a cellular constant; the order of ability to imbibe water is always the same, thus, lung and brain-tissue, kidney, muscle, liver. The water capacity of tissues in general is greater according as the cholesterine is greater in relation to, first the fatty acids, and second, the lipoid phosphorus. Mayer and Shaeffer's observations bear out the statement that the inhibition of tissues increases with lowering of the temperature; also that the red red corpuscles of various species are more easily hemolysed the higher is their lipocytic coefficient, that is, the relation of cholesterine to lipoid phosphorus, and tissues swell in water according to the same law.

**Labor and Anaphylaxis.**—Heide's theory that the onset of labor is the result of an anaphylactic process, while ingenious, is not borne out by the latest work on the subject, that of Kolmer (*Jour. Med. Res.*, January, 1914). Heide considered that the mother was gradually sensitized by fetal toxins, that an antibody is thus gradually produced, and that labor is the result of anaphylotoxin split off by the effect of the toxic substance and the antibody. The administration of serum from pregnant women at term into the veins of those about to fall into labor is negative, but serum separated from the placental blood and injected into patients close to term succeeded in starting the pains, or if not in instituting the pains, at least in increasing pains already present but weak. Kolmer's work with guinea-pigs and serum from pregnant pigs injected subcutaneously into other pregnant pigs at term was without positive result. The same result was obtained when the serum of mother pigs was collected a few minutes after the birth of their young and injected into animals near term. Serum from young pigs immediately after birth, and even from young pigs removed by abdominal section, gave no effects upon pregnant pigs close to term. The extracts of ground placenta was administered without any immediate results. Pregnant pigs were given intravenous injection of serum from human placental blood without result. Finally human placental serum was administered to eight human patients near term with no effect upon the uterus, and with scarcely any effect upon the temperature, pulse, and respiration. In such a case it is difficult to avoid some result, owing to mental impression.

**Cytology of the Blood in Passive Immunity.**—Douglas reports (*Jour. Path. and Bact.*, 1914, xix, 33) a study upon the cellular content of the blood after the use of various sera. It has been well known that upon the introduction of bacterial antigens into animals a